

O9S.D
S78

THESIS



Consisting of Published and
Unpublished Observations
in

MEDICAL MICROBIOLOGY

by

NEVILLE F. STANLEY

Submitted as requirement for the degree
of Doctor of Science of the University
of Adelaide, September, 1953.

CONTENTS

I. INTRODUCTION

II. BACTERIOLOGICAL SECTION

Studies on

A. Listeria monocytogenes

B. Antibiotics

C. Microbial polysaccharides

III. VIRUS SECTION

A. Poliomyelitis-Coxsackie investigations

B. Historical epidemiology - a study of the antibody content of pooled human serum.

1. Virus neutralizing antibodies in pooled human serum.

2. A comparison of two antigenically distinct viruses.

3. Estimation of influenza virus antibodies in pooled human serum by the haemagglutination-inhibition technique.

C. Studies on the hepato-encephalomyelitis virus (HEV).

1. Variation.

2. Neutralization tests.

3. Complement-fixation tests.

4. Discussion on the nature of HEV.

D. The isolation and properties of New South Wales strains of viruses of the psittacosis-lymphogranuloma group.

1. Lymphogranuloma venereum

2. Psittacosis.

I. INTRODUCTION

This thesis comprises unpublished work and the following published papers:

1. (1946) Aust. J. exp. Biol., 24, 133.
The biological activity of a substance resembling gliotoxin produced by Aspergillus fumigatus.
2. (1948) Med. J. Aust., Aug. 21, 205.
Listeria meningitis: a description of a strain of Listeria monocytogenes and a report of a case.
3. (1949) Aust. J. exp. Biol., 27, 123.
Studies on Listeria monocytogenes.
I. Isolation of a monocytosis-producing agent (MPA)
4. (1949) Ibid., 27, 133.
II. Role of listeria in infectious mononucleosis.
5. (1950) Ibid., 28, 117.
III. The failure to isolate the organism from the human throat.
6. (1950) Ibid., 27, 409.
Polysaccharide haptens from Torula histolytica.
7. (1950) Ibid., 28, 99.
Biological properties of polysaccharide and lipid fractions from a pathogenic strain of Aspergillus fumigatus.
8. (1950) Ibid., 28, 109.
The augmenting action of lecithin and the lipoids of Aspergillus fumigatus and Listeria monocytogenes in antibody production, using S. typhi-murium as an antigen.
9. (1950) Ibid., 28, 20.
Preparation and properties of somatic antigens isolated from Bact. coli.
(with Hayes, L.)
10. (1951) Aust. J. exp. Biol., 29, 367.
Suckling mouse viruses in New South Wales: their relation to the Coxsackie group of viruses.
(with Hayes, L. and Dorman, D.C.)
11. (1951) Ibid., 29, 363.
Purification of Australian strains of Coxsackie viruses.

12. (1952) Proc. Soc. exp. Biol. and Medicine, 81, 430.
Attempts to demonstrate interference between Coxsackie
and poliomyelitis viruses in mice and monkeys.
13. (1953) Aust. J. exp. Biol., 31, 1.
A poliomyelitis virus pathogenic for suckling mice
and monkeys.
(with Dorman, D.C.)
14. (1953) Ibid., 31, p.9.
Group A Coxsackie viruses isolated from cases of
poliomyelitis.
(with Dorman, D.C.)
15. (1953) Ibid., 31, 17.
Antibodies to Coxsackie viruses in pooled human serum.
(with Dorman, D.C. and Ponsford, J.)
16. (1953) Ibid., 31, 21.
Studies on Australian strains of Coxsackie viruses
(groups A and B).
(with Dorman, D.C. and Ponsford, J.)
17. (1953) Ibid., 31, 31.
A hitherto undescribed group of Coxsackie viruses
associated with an outbreak of encephalitis.
(with Dorman, D.C. and Ponsford, J.)
18. (1953) Ibid., 31, 147.
Studies on the pathogenesis of a hitherto undescribed
virus (hepato-encephalomyelitis) producing unusual
symptoms in suckling mice.
(with Dorman, D.C. and Ponsford, J.)

Reprints are included in each section. All the
work described is claimed as original.

The material to be submitted has been divided
into two main sections, viz. one section on Bacteriology
and one on viruses. The bacteriological studies have been
carried out without technical assistance except for the
preparation of simple culture media, the cleaning and
sterilizing of glassware, etc. Assistance was received

from Lila Hayes, M.H.Sc., in studying the biological activity of some of the bacterial polysaccharides and these observations have been published conjointly.

Investigations on the Coxsackie and poliomyelitis groups of viruses were commenced towards the end of 1950. During 1952 and 1953 mice were inculcated in this laboratory at the approximate rate of 40,000 per annum. All mice were bred in this laboratory's Animal House under my constant supervision. Because of the large numbers of rodents handled and because of the highly resistant nature of the infective agents studied, new methods have been evolved for checking, recording and post-mortem examination. In the preparation of some solutions and suspensions of infected carcasses, and in the checking of some of the mice, assistance was obtained from D.C. Dorman and Joan Ponsford. The sections for histo-pathological examination were prepared by a technician. The monkeys were imported from Singapore and made available to this Institute by Sir Edward Hallstrom. All experimental work has been carried out in the laboratories of the Institute of Epidemiology and Preventive Medicine and the McIlrath Department of Pathology at the Prince Henry Hospital, Sydney.